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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/428,679 | 10/27/1999 | ADAM L. SELIGMAN | P98-1866 | 4978 |

24202 7590 11/07/2002

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| ART UNIT | PAPER NUMBER |
|---|---|
| 2671 | |

DATE MAILED: 11/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/428,679 | SELIGMAN, ADAM L. | |
| | Examiner | Art Unit | |
| | Scott Wallace | 2671 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 August 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *6,7,9-12,15-18,20 and 22-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,7,9-12,15-18,20 and 22-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## *Response to Arguments*

1. Applicant's arguments with respect to claims 6-7, 9-12, 15-18, 20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe U.S. Patent No. 5,963,209 in view of Grimaud et al., U.S. Patent No. 5,546,530.

4. As per claim 6, Hoppe discloses sending a request from a first computer (client) to a another computer (server) over a high speed network (column 17 lines 33-40 and 49-60_, the other computer (server) storing high resolution three dimensional scene objects (see abstract), wherein the request identify three dimensional objects stored in the other computer (server) (column 17 lines 49-60); operating the other computer (server) to create a LOD mesh representation of the selected three dimensional objects stored at the other computer (server) (column 17 lines 33-40); and communicating the LOD mesh representations of the selected three dimensional objects from the other computer (server) over the network to the first computer (client), the first computer rendering the received LOD mesh representations and creating a display thereof (column 17 lines 33-40 and 49-60 and column 18 lines 14-15).

However, Hoppe does not disclose using a plurality of computers to store the different three dimensional objects. This is disclosed in Grimaud et al in column 2 lines 17-26 and 35-41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

use the plurality of computers of Grimaud with the system of Hoppe because this would have saved memory in the computer generating the image and also would have provided fixed bandwidth which produces a linear cost/performance curve instead of an exponential one.

5. As per claim 7, Grimaud discloses initially distributing the high resolution three dimensional objects from the first computer for storage by the plurality of other computers (column 2 lines 17-26 and 35-41 and column 6 lines 13-23); and associating identifiers (nodes) with the three dimensional objects (column 2 lines 53-65).

6. As per claim 9, Hoppe discloses wherein the requests include a specified level of detail for creation of the LOD mesh representations from the stored high resolution three dimensional objects (column 17 lines 33-40).

7. As per claim 10, Hoppe discloses wherein the creating step includes creating LOD representations of the three dimensional objects with the specified level of detail as contained in the requests (column 17 lines 33-40).

8. As per claim 11, Hoppe discloses receiving an input from a user on the first computer (column 17 lines 33-40); processing the input to determine a first three dimensional scene that corresponds with the input (column 17 lines 33-40 and 49-60); and receiving subsequent inputs from the user and processing the inputs to determine subsequent three dimensional scenes that correspond with the subsequent inputs, wherein the user interactively controls the display of the subsequent three dimensional scenes by subsequent inputs (column 17 lines 33-40 and 49-60).

9. As per claims 12 and 17, Hoppe discloses a visualization console (column 18 lines 14-15); a workstation connected to the visualization console by a high speed network to enable the visualization console and the workstation to operate together (column 17 lines 33-40); the workstation storing three

dimensional objects (column 17 lines 33-40), the stored three dimensional objects collectively representing a three dimensional scene (column 17 lines 33-40 and 49-60); and identification information stored at the visualization console identifying each of the three dimensional objects stored at the workstation (column 17 lines 49-60); wherein the visualization console is operable under user control to communicate requests to the workstation over the high speed network (column 17 lines 33-40 and 49-60), identifying respective ones of the three dimensional objects stored at the workstation representing a selected view of the three dimensional scene (column 17 lines 33-40 and 49-60); the workstations are responsive to received request to operate to create LOD representations of the respective stored three dimensional objects identified by the requests received from the visualization console and to communicate the LOD representations of the selected three dimensional objects to the visualization console for assembly into a display representation of the selected view of the three dimensional scene (column 17 lines 33-40 and 49-60).

However, Hoppe does not disclose where the workstations operate in parallel to create the LOD representations. This is disclosed in Grimaud et al in column 1 lines 1-5 and column 2 lines 17-26. It would have been obvious to one of ordinary skill in the art to use parallel processing of Grimaud with the system of Hoppe because this would produce a fixed bandwidth processing which produces a linear cost/performance curve rather than the conventional exponential cost/performance curve.

10. As per claim 15, Hoppe discloses wherein the request include a specified level of detail for the LOD representations of the selected three dimensional objects to be created by the workstations (column 17 lines 33-40 and 49-60).

11. As per claim 16, Hoppe discloses wherein the workstation create meshes comprising LOD representations of the three dimensional objects with the specified level of detail as contained in the requests (column 17 lines 33-40 and 49-60).

12. As per claim 18, Grimaud discloses wherein the visualization console includes means for distributing said three dimensional objects for storage at the plurality of workstations over the high speed network (column 2 lines 17-26 and 53-65).

13. As per claim 20, Hoppe discloses wherein the request include a specified level of detail for the LOD representations to be created from the three dimensional objects stored at the workstations (column 17 lines 33-40 and 49-60).

14. As per claim 22, Hoppe discloses means for receiving an input from a user on the first computer (column 17 lines 33-40 and 49-60); means for processing the input to determine a first three dimensional scene that corresponds with the input (column 17 lines 33-40 and 49-60); and means for receiving subsequent inputs from the user and processing the inputs to determine subsequent three dimensional scenes that correspond with the subsequent inputs, wherein the user interactively controls the display of the subsequent three dimensional scenes by his subsequent inputs (column 17 lines 33-40 and 49-60).

15. As per claims 23, 28, 31 and 32, Hoppe discloses from a first computer (client) coupled to a display (column 18 lines 14-15), transmitting a retrieval request to a second computer storing three dimensional scene objects distributively stored at second computer together with associated identifiers (column 17 lines 33-40 and 49-60), said stored three dimensional scene objects collectively representing a three dimensional scene, said retrieval request including identifiers associated with stored scene objects representing a portion of the three dimensional scene selected for display (column 17 lines 33-40 and 49-60); the second computer retrieving and processing three dimensional scene objects stored at the individual ones of the second computer based on each match between a three dimensional scene object identifier in the received request and a three dimensional scene object identifier stored at that second computer (column 17 lines 33-40 and 49-60), the processing by the second computer creating respective meshes of the retrieved three dimensional scene objects at a selected level of detail; the second computer communicating the processed three dimensional scene object meshes to the first computer to

render and display a representation of the selected portion of the three dimensional scene assembled from the three dimensional scene object meshes communicated by the second computer to the first computer (column 17 lines 33-40 and 49-60).
However, Hoppe does not disclose a plurality of computers processing in parallel. This is disclosed in Grimaud et al in column 1 lines 1-5 and column 2 lines 17-26 and 35-41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a plurality of computers with the system of Hoppe because this would produce a fixed bandwidth processing which produces a linear cost/performance curve rather than the conventional exponential cost/performance curve (column 2 lines 44-49).

16. As per claim 24, Grimaud et al discloses wherein each three dimensional scene object identifier (node) includes the location of that object in the three dimensional scene (column 2 lines 53-65).

17. As per claims 25 and 29, Hoppe discloses wherein the three dimensional scene objects stored at the second computer include information concerning one or more of geometry, color and texture of the object (abstract).

18. As per claim 26, Grimaud discloses wherein the stored three dimensional scene objects are distributed in a predetermined manner amongst the plurality of second computers (column 2 lines 17-26 and 53-65).

19. As per claims 27 and 30, Hoppe discloses wherein the three dimensional scene objects are stored at the second computer as high resolution models, and the processing carried out by the second computer creates respective meshes of the retrieved three dimensional scene objects at a selected lower level of resolution (column 5 lines 17-25).

20. As per claim 33, Hoppe discloses a first computer including a rendering pipeline and a display (column 17 lines 33-40 and 49-60); a workstation operably coupled to the first computer by communication network (column 17 lines 33-40); a database of three dimensional scene objects collectively representing a three dimensional scene, said database accessible by the workstation (column 17 lines 49-60); the first computer operable to send over said communication links a retrieval request to the plurality of workstations identifying a selected plurality of said stored three dimensional scene objects representing a selected view of said three dimensional scene (column 17 lines 33-40); the first computer is operable to create a display representation of the selected view of the three dimensional scene from the received three dimensional scene object meshes (column 18 lines 14-15).
However, Hoppe does not disclose a plurality of workstations operable in parallel to retrieve and process three dimensional scene. This disclosed in Grimaud et al in column 1 lines 1-5 and column 2 lines 17-26 and 35-41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plurality of computers working in parallel with the system of Hoppe because this would produce a fixed bandwidth processing which produces a linear cost/performance curve rather than the conventional exponential cost/performance curve (column 2 lines 43-48).

21. As per claim 34, Grimaud discloses wherein the retrieval request specifies the location of each selected object in the three dimensional scene (column 2 lines 53-65).

22. As per claim 35, Hoppe discloses wherein the three dimensional scene objects stored at the workstation include information concerning geometry, color and texture of the object (abstract).

23. As per claim 36, Grimaud discloses wherein the selected three dimensional scene objects are distributed in a predetermined manner amongst the plurality workstations for processing (column 2 lines 53-65).

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Scott Wallace** whose telephone number is **703-605-5163**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at 703-305-9798.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600